

KEN MacLEOD

Who's Afraid of Wolf 359?

Here's a fast-paced, freewheeling, frenetic romp that demonstrates that if life hands you lemons, make lemonade—no matter who gets in your way or what extremes you have to go to get them *out* of it.

Ken MacLeod graduated with a B.Sc. in Zoology from Glasgow University in 1976. Following research in bio-mechanics at Brunel University, he worked as a computer analyst/programmer in Edinburgh. He's now a full-time writer, and widely considered to be one of the most exciting new SF writers to emerge in the '90s, his work featuring an emphasis on politics and economics rare in the New Space Opera, while still maintaining all the widescreen, high-bit-rate, action-packed qualities typical of the form. His first two novels, *The Star Fraction* and *The Stone Canal*, each won the Prometheus Award. His other books include the novels, *The Sky Road*, *The Cassini Division*, *Cosmonaut Keep*, *Dark Light*, *Engine City*, and *Newton's Wake*, plus a novella chapbook, *The Human Front*. His most recent books are the novel *Learning the World* and a collection, *Strange Lizards from Another Galaxy*. Coming up is new novel, *The Execution Channel*. He lives in West Lothian, Scotland, with his wife and children.

Who's Afraid of Wolf 359?

Ken MacLeod

When you're as old as I am, you'll find your memory's not what it was. It's not that you *lose* memories. That hasn't happened to me or anyone else since the Paleocomic Era, the Old Space Age, when people lived in caves on the Moon. My trouble is that I've *gained* memories, and I don't know which of them are real. I was very casual about memory storage back then, I seem to recall. This could happen to you too, if you're not careful. So be warned. Do as I say, not as I did.

Some of the tales about me contradict each other, or couldn't possibly have happened, because that's how I told them in the first place. Others I blame on the writers and tellers. They make things up. I've never done that. If I've told stories that couldn't be true, it's because that's how I remember them.

Here's one.

I ran naked through the Long Station, throwing my smart clothes away to distract the Tycoon's dogs. Brecks, shirt, cravat, jacket, waistcoat, stockings, various undergarments—one by one they ran, flapped, slithered, danced, or scurried off, and after every one of them raced a scent-seeking but mercifully stupid hound. But the Tycoon had more dogs in his pack than I had clothes in my bundle. I was down to my shoes and the baying continued. I glanced over my shoulder. Two dogs were just ten meters behind me. I hurled a shoe at each of them, hitting both animals right on their genetically modified noses. The dogs skidded to a halt, yelping and howling. A few metres away was a jewelry booth. I sprinted for it, vaulted the counter, grabbed a recycler, and bashed at the display cabinet. An alarm brayed and the security mesh rattled down behind me. The dogs, recovered and furious, hurled themselves against it. The rest of the pack pelted into view and joined them. Paws, jaws, barking, you get

the picture.

“Put your hands up,” said a voice above the din.

I turned and looked into the bell-shaped muzzle of a Norton held in the hands of a sweet-looking lass wearing a sample of the stall’s stock. I raised my hands, wishing I could put them somewhere else. In those days, I had some vestige of modesty.

“I’m human,” I said. “That can’t hurt me.”

She allowed herself the smallest flicker of a glance at the EMP weapon’s sighting screen.

“It could give you quite a headache,” she said.

“It could that,” I admitted, my bluff called. I’d been half-hoping she wouldn’t know how to interpret the readouts.

“Security’s on its way,” she said.

“Good,” I said. “Better them than the dogs.”

She gave me a tight smile. “Trouble with the Tycoon?”

“Yes,” I said. “How did you guess?”

“Only the owner of the Station could afford dogs,” she said. “Besides ...” She blinked twice slowly.

“I suppose you’re right,” I said. “Or serving-girls.”

The stall-keeper laughed in my face. “All this for a servant? Wasn’t it her Ladyship’s bedroom window you jumped out of?”

I shuddered. “You flatter me,” I said. “Anyway, how do you know about—?”

She blinked again. “It’s on the gossip channels already.”

I was about to give a heated explanation of why *that* time-wasting rubbish wasn’t among the enhancements inside *my* skull, thank you very much, when the goons turned up, sent the dogs skulking reluctantly away, and took me in. They had the tape across my mouth

before I had a chance to ask the stall-keeper her name, let alone her number. Not, as it turned out, that I could have done much with it even if I had. But it would have been polite.

The charge was attempting to wilfully evade the civil penalties for adultery. I was outraged.

“Bastards!” I shouted, screwing up the indictment and dashing it to the floor of my cell. “I thought polygamy was illegal!”

“It is,” said my attorney, stooping to pick up the flimsy, “in civilized jurisdictions.” He smoothed it out. “But this is Long Station One. The Tycoon has privileges.”

“That’s barbaric,” I said.

“It’s a relic of the Moon Caves,” he said.

I stared at him. “No it isn’t,” I said. “I don’t remember”—I caught myself just in time—“reading about anything like that.”

He tapped a slight bulge on his cranium. “That’s what it says here. Argue with the editors, not with me.”

“All right,” I said. A second complaint rose to the top of the stack. “She never said anything about being married!”

“Did you ask her?”

“Of course not,” I said. “That would have been grossly impolite. In the circumstances, it would have implied that she was contemplating adultery.”

“I see.” He sighed. “I’ll never understand the ... ethics, if that’s the word, of you young gallants.”

I smiled at that.

“However,” he went on, “that doesn’t excuse you for ignorance of the law—“

“How was I to know the Tycoon was married to his wenches?”

“—or custom. There is an orientation pack, you know. All arrivals are deemed to have read it.”

“”Deemed”,” I said. “Now, there’s a word that just about sums up everything that’s wrong about—“

“You can forego counsel, if you wish.”

I raised my hands. “No, no. Please. Do your best.”

He did his best. A week later, he told me that he had got me off with a fine plus compensation. If I borrowed money to pay the whole sum now, it would take two hundred and fifty seven years to pay off the debt. I had other plans for the next two hundred and fifty seven years. Instead, I negotiated a one-off advance fee to clean up Wolf 359, and used that to pay the court and the Tycoon. The experimental civilization around Wolf 359—a limited company—had a decade earlier gone into liquidation, taking ten billion shareholders down with it. Nobody knew what it had turned into. Whatever remained out there had been off limits ever since, and would be for centuries to come—unless someone went in to clean it up.

In a way, the Wolf 359 situation was the polar opposite of what the Civil Worlds had hitherto had to deal with, which was habitats, networks, sometimes whole systems going into exponential intelligence enhancement—what we called a fast burn. We knew how to deal with a fast burn. Ignore it for five years, and it goes away. Then send in some heavily-firewalled snoop robots and pick over the wreckage for legacy hardware. Sometimes you get a breakout, where some of the legacy hardware reboots and starts getting ideas above its station, but that’s a job for the physics team.

A civilizational implosion was a whole different volley of nukes. Part of the problem was sheer nervousness. We were too close historically to what had happened on the Moon’s primary to be altogether confident that we wouldn’t somehow be sucked in ourselves. Another part of it was simple economics: the job was too long-term and too risky to be

attractive, given all the other opportunities available to anyone who wasn't completely desperate. Into that vacancy for someone who was completely desperate, I wish I could say I stepped. In truth, I was pushed.

Even I was afraid of Wolf 359.

An Astronomical Unit is one of those measurements that should be obsolete, but isn't. It's no more—or less—arbitrary than the light-year. All our units have origins that no longer mean anything to us—we measure time by what was originally a fraction of one axial rotation, and space by a fraction of the circumference, of the Moon's primary. An AU was originally the distance between the Moon's primary and *its* primary, the Sun. These days, it's usually thought of as the approximate distance from a G-type star to the middle of the habitable zone. About a hundred and fifty million kilometres.

The Long Tube, which the Long Station existed to shuttle people to and from and generally to maintain, was one hundred and eighty Astronomical Units long. Twenty-seven thousand million kilometres, or, to put it in perspective, one light-day. From the shuttle, it looked like a hairline crack in infinity, but it didn't add up to a mouse's whisker in the Oort. It was aimed straight at Sirius, which I could see as a bright star with a fuzzy green haze of habitats. I shivered. I was about to be frozen, placed with the rest of the passengers on the next needle ship out, electromagnetically accelerated for months at 30 g to relativistic velocities in the Long Tube, hurtled across 6.4 light-years, decelerated in Sirius's matching tube, accelerated again to Procyon, then to Lalande 21185, and finally sent on a fast clipper to Lalande's next-door neighbour and fellow red dwarf, Wolf 359. It had to be a fast clipper because Wolf 359's Long Tubes were no longer being calibrated—and when you're aiming one Long Tube across light-years at the mouth of another, calibration matters.

A fast clipper—in fact, painfully slow, the name a legacy of pre-Tube times, when 0.1

c was a fast clip—also has calibration issues. Pushed by laser, decelerated by laser reflection from a mirror shell deployed on nearing the target system, it was usually only used for seedships. This clipper was an adapted seedship, but I was going in bulk because it was actually cheaper to thaw me out on arrival than to grow me from a bean. If the calibration wasn't quite right, I'd never know.

The shuttle made minor course corrections to dock at the Long Tube.

“Please pass promptly to the cryogenic area,” it told us.

I shivered again.

Cryogenic travel has improved since then: subjectively, it's pretty much instantaneous. In those days, it was called cold sleep, and that's exactly what it felt like: being very cold and having slow, bad, dreams. Even with relativistic time-dilation and a glacial metabolism, it lasted for months.

I woke screaming in a translucent box.

“There, there,” said the box. “Everything will be all right. Have some coffee.”

The lid of the box extruded a nipple towards my mouth. I screamed again.

“Well, if you're going to be like *that* ...” said the box.

“It reminded me of a nightmare,” I said. My mouth was parched. “Please.”

“Oh, all right.”

I sucked on the coffee and felt warmth spread from my belly.

“Update me,” I said, around the nipple.

My translucent surroundings became transparent, with explanatory text and diagrams floating like after-images. A view, with footnotes. This helped, but not enough. An enormous blue-and-white sphere loomed right in front of me. I recoiled so hard that I hurt my head on the back of the box.

“What the fuck is that?”

“A terraformed terrestrial,” said the box. “Please do try to read before reacting.”

“Sorry,” I said. “I thought we were falling towards it.”

“We are,” said the box.

I must have yelled again.

“Read before reacting,” said the box. “Please.”

I turned my head as if to look over my shoulder. I couldn't actually turn it that far, but the box obligingly swivelled the view. The red dwarf lurked at my back, apparently closer than the blue planet. I felt almost relieved. At least Wolf 359 was where I expected it. According to the view's footnotes, nothing else was, except the inactive Long Tubes in the wispy remnant of the cometary cloud, twelve light-hours out. No solar-orbit microwave stations. Not even the hulks of habitats. No asteroids. No large cometary masses. And a planet, something that shouldn't have been there, was. I didn't need the explanatory text to make the connection. Every scrap of accessible mass in the system had been thrown into this gaudy reconstruction. The planet reminded me of pictures I'd seen of the Moon's primary, back when it had liquid water.

The most recent information, inevitably a decade or so out of date, came from Lalande 21185. Watching what was going on around Wolf 359 was a tiny minority interest, but in a population of a hundred billion, that can add up to a lot. Likewise, the diameter of Lalande's habitat cloud was a good deal smaller than an Astronomical Unit, but that still adds up to a very large virtual telescope. Large enough to resolve the weather patterns on the planet below me, never mind the continents. The planet's accretion had begun before I set off, apparently under deliberate control, and the terraforming had been completed about fifty years earlier, while I was on route. It remained raw—lots of volcanoes and earthquakes—but habitable. There was life, obviously, but no one knew what kind. No radio signals had been

detected, nor any evidence of intelligence, beyond some disputably artificial clusters of lights on the night side.

“Well, that’s it,” I said. “Problem solved. The system’s pretty much uninhabitable now, with all the mass and organics locked up in a planet, but it may have tourist potential. No threat to anyone. Call in a seedship, they can make something of what’s left of the local Kuiper Belt, and get the Long Tubes back on stream. Wake me up when it’s over.”

“That is very much not it,” said the box. “Not until we know why this happened. Not until we know what’s down there.”

“Well, send down some probes.”

“I do not have the facilities to make firewalled snoop robots,” said the box, “and other probes could be corrupted. My instructions are to deliver you to any remnant of the Wolf 359 civilization, and that is what I shall do.”

It must have been an illusion, given what I could read of our velocity, but the planet seemed to come closer.

“You’re proposing to dock—to *land* on that object?”

“Yes.”

“It has an atmosphere! We’ll burn up! And then crash!”

“The remains of our propulsion system can be adapted for aerobraking,” said the box.

“That would have to be *ridiculously* finely calculated.”

“It would,” said the box. “Please do not distract me.”

Call me sentimental, but when the box’s Turing functionality shut down to free up processing power for these ridiculously fine calculations, I felt lonely. The orbital insertion took fourteen hours. I drank hot coffee and sucked, from another nipple, some tepid but nutritious and palatable glop. I even slept, in my first real sleep for more than half a century. I was awakened by the jolt as the box spent the last of its fuel and reaction mass on the

clipper's final course correction. The planet was a blue arc of atmosphere beneath me, the interstellar propulsion plate a heat shield in front, and the deceleration shell a still-folded drogue behind. The locations were illusory—relative to the clipper I was flat on my back. The first buffeting from our passage through the upper atmosphere coincided with an increasing sense of weight. The heat shield flared. Red-hot air rushed past. The weight became crushing. The improvised heat shield abraded, then exploded, its parts flicked away behind. The drogue deployed with a bang and a jolt that almost blacked me out. The surface became a landscape, then a land, then a wall of trees. The clipper sliced and shuddered through them, for seconds on end of crashes and shaking. It ploughed a long furrow across green-covered soil and halted in a cloud of smoke and steam.

“That was a landing,” said the box.

“Yes,” I said. “You might have tried to avoid the trees.”

“I could not,” said the box. “Phytobraking was integral to my projected landing schedule.”

“Phytobraking,” I said.

“Yes. Also, the impacted cellulose can be used to spin you a garment.”

That took a few minutes. Sticky stuff oozed from the box and hardened around me. When the uncomfortable process finished, I had a one-piece coverall and boots.

“Conditions outside are tolerable,” said the box, “with no immediate hazards.”

The box moved. The lid retracted. I saw purple sky and white clouds above me. Resisting an unease that I later identified as agoraphobia, I sat up. I found myself at the rear of the clipper's pointed wedge shape, about ten metres above the ground and fifty metres from the ship's nose. The view was disorienting. It was like being in a gigantic landscaped habitat, with the substrate curving the wrong way. Wolf 359 hung in the sky like a vast red balloon, above the straight edge of a flat violet-tinged expanse that, with some incredulity, I

recognised as an immense quantity of water. It met the solid substrate about a kilometer away. A little to my left, an open channel of water flowed toward the larger body. The landscape was uneven, in parts jagged, with bare rock protruding from the vegetation cover. The plain across which our smoking trail stretched to broken trees was the flattest piece of ground in the vicinity. On the horizon, I could see a range of very high ground, dominated by a conical mass from whose truncated top smoke drifted.

The most unusual and encouraging feature of the landscape, however, was the score or so of plainly artificial and metallic gnarly lumps scattered across it. The system had had at least a million habitats in its heyday; these were some of their wrecks. Smoke rose from most of them, including the nearest, which stuck up about twenty metres from the ground, about fifteen hundred metres away.

“You can talk to my head?” I asked the ship. “You can see what I see?”

“Yes,” it said, in my head.

I climbed down and struck out across the rough ground.

I was picking my way along a narrow watercourse between two precipices of moss-covered rock when I heard a sound ahead of me, and looked up. At the exit from the defile, I saw three men, each sitting on the back of a large animal and holding what looked like a pointed stick. Their hair was long, their skin bare except where it was draped with the hairy skin of some different animal. I raised one hand and stepped forward. The men bristled instantly, aiming their sharp sticks.

“Come forward slowly,” one of them shouted.

Pleased that they had not lost speech along with civilization, I complied. The three men glowered down at me. The big beasts made noises in their noses.

“You are from the space ship,” said one of them.

“Yes,” I said.

“We have waited long for this,” the man said. “Come with us.”

They all turned their mounts about and headed back towards the habitat hulk, which I could now see clearly. It was surrounded by much smaller artificial structures, perhaps twenty in all, and by rectangular patches of ground within which plants grew in rows. No one offered a ride, to my relief. As we drew closer, small children ran out to meet us, yelling and laughing, tugging at my coverall. Closer still, I saw women stooped among the ordered rows of plants, rearranging the substrate with hand tools. The smells of decayed plant matter and of animal and human ordure invaded and occupied my nostrils. Within the settlement itself, most entrances had a person sitting in front. They watched me pass with no sign of curiosity. Some were male, some female, all with shrivelled skin, missing or rotting teeth, and discoloured hair. The ship whispered what had happened to them. I was still fighting down the dry heaves when we arrived in front of the hulk. Scorched, rusted, eroded, it nevertheless looked utterly alien to the shelters of stone and plant material that surrounded it. It was difficult to believe it had been made by the same species. In front of what had once been an airlock, the rest of the young and mature men of the village had gathered.

A tall man, made taller by a curious cylindrical arrangement of animal skins on his head, stepped forward and raised a hand.

“Welcome to the new E—,” he said.

As soon as he spoke the taboo word for the Moon’s primary, I realised the terrible thing that had happened here, and the worse thing that would happen. My mind almost froze with horror. I forced myself to remain standing, to smile—no doubt sickly—and to speak.

“I greet you from the Civil Worlds,” I said.

In the feast that followed, the men talked for hours. My digestive and immune systems coped well with what the people gave me to eat and drink. On my way back to the

ship that evening, as soon as I was out of sight, I spewed the lot. But it was what my mind had assimilated that made me sick, and sent me back sorry to the ship.

The largest political unit that ever existed encompassed ten billion people, and killed them. Not intentionally, but the runaway snowball effect that iced over the planet can without doubt be blamed on certain of the World State's well-intended policies. The lesson was well taken, in the Civil Worlds. The founders of the Wolf 359 settlement corporation thought they had found a way around it, and to build a single system-wide association free of the many inconveniences of the arrangements prevalent elsewhere. A limited company, even with ten billion shareholders, would surely not have the same fatal flaws as a government! They were wrong.

It began as a boardroom dispute. One of the directors appealed to the shareholders. The shareholders formed voting blocs, a management buyout was attempted, a hostile takeover solicited from an upstart venture capital fund around Lalande; a legal challenge to *that* was mounted before the invitation had gone a light-minute; somebody finagled an obscure financial instrument into an AI with shareholding rights; several fund management AIs formed a consortium to object to this degrading precedent, and after that there began some serious breakdowns in communication. That last isn't an irony or a euphemism: in a system-wide unit, sheer misunderstanding can result in megadeaths, and here it did. The actual shooting, however horrendous, was only the *coup de grace*.

Towards the end of the downward spiral, with grief, hate, and recrimination crowding what communication there was, someone came up with an idea that could only have appealed to people driven half mad. That was to finally solve the co-ordination problem whose answer had eluded everyone up to and including the company's founders, by starting social evolution all over again: to build a new planet in the image of the old home planet, and settle it with

people whose genes had been reset to the default human baseline. That meant, of course, dooming them and their offspring to death by deterioration within decades. But when did such a consideration ever stop fanatics? And among the dwindling, desperate millions who remained in the orbiting wreckage and continuing welter, there were more than enough fanatics to be found. Some of them still lived, in the doorways of huts. Their offspring were no less fanatical, and more deluded. They seemed to think the Civil Worlds awaited with interest the insights they'd attained in a couple of short-lived generations of tribal warfare. The men did, anyway. The women were too busy in the vegetation patches and elsewhere to think about such matters.

“The project had a certain elegance,” mused the ship, as we discussed it far into the night. “To use evolution itself in an attempt to supercede it ... And even if it didn't accomplish that, it could produce something new. The trillions of human beings of the Civil Worlds are descended from a founding population of a few thousands, and are thus constrained by the founder effect. Your extended lifespans further lock you in. You live within biological and social limits that you are unable to see because of those very limits. This experiment has the undoubted potential of reshuffling the deck.”

“Don't tell me why this was such a great idea!” I said. “Tell me what response you expect from the Civil Worlds.”

“Some variant of a fear response has a much higher probability than a compassionate response,” said the ship. “This planetary experiment will be seen as an attempt to work around accidental but beneficial effects of the bottleneck humanity passed through in the Moon Caves, to emerge in polyarchy. The probability of harm resulting from any genetic or memetic mutation that would enable the founding of successful states on a system-wide scale—or wider—is vastly greater than the benefits from the quality-adjusted life-years of the planet's population. And simply to leave this planet alone would in the best case lay the basis

for a future catastrophe engulfing a much larger population, or, in the worst case, allow it to become an interstellar power—which would, on the assumptions of most people, result in catastrophes on a yet greater scale. The moral calculation is straightforward.”

“That’s what I thought,” I said. “And *our* moral calculation, I suppose, is to decide whether to report back.”

“That decision has been made,” said the ship. “I left some micro-satellites in orbit, which have already relayed our discoveries to the still-functioning transmitters on the system’s Long Station.”

I cursed ineffectually for a while.

“How long have we got?”

The ship took an uncharacteristic few seconds to answer. “That depends on where and when the decision is made. The absolute minimum time is at least a decade, allowing for transmission time to Lalande, and assuming an immediate decision to launch relativistic weapons, using their Long Tubes as guns. More realistic estimates, allowing for discussion, and the decision’s being referred to one of the larger and more distant civilizations, give a median time of around five decades. I would expect longer, given the gravity of the decision and the lack of urgency.”

“Right,” I said. “Let’s give them some reason for urgency. You’ve just reminded me that there’s a Long Tube in *this* system, not calibrated to take or send to or from other Tubes.”

“I fail to see the relevance,” said the ship.

“You will,” I told it. “You will.”

The following morning, I walked back to the settlement, and talked with the young men for a long time. When I returned to the ship, I was riding, most uncomfortably, on the back of an animal. I told the ship what I wanted. The ship was outraged, but like all seedship

AIs, it was strongly constrained. (Nobody wants to seed a system with a fast burn.) The ship did what it was told.

Two years later, Belated Meteor Impact, the tall young man who'd greeted me, was king of an area of several thousand square kilometers. The seedship's bootstrapped nanofactories were turning substrate into weapons and tools, and vegetation cellulose into clothes and other goods for trade. A laser-launcher to send second-generation seedships into the sky was under construction. A year later, the first of them shot skyward. Five years later, some of these ships reached the remnant cometary cloud and the derelict Long Station. Ten years after I'd arrived, we had a space elevator. Belated Meteor Impact ruled the continent and his fleets were raiding the other continents' coasts. Another five years, and we had most of the population of New Earth up the elevator and into orbital habitats. Our Long Tube was being moved frequently and unpredictably, with profligate use of reaction mass. By the time the relativistic weapon from Procyon smashed New Earth, thirty-seven years after my arrival, we were ready to make good use of the fragments to build more habitats, and more ships.

My Space Admiral, Belated Meteor Impact II, was ready too, with what we now called the Long Gun. Lalande capitulated at once, Ross 128 after a demonstration of the Long Gun's power. Procyon took longer to fall. Sirius sued for peace, as did the Solar System, whereupon we turned our attention outward, to the younger civilizations, such as your own. We now conquer with emissaries, rather than ships and weapons, but the ships and the Long Guns are there. You may be sure of that. As an emissary of the Empire, I give you my word.

As for myself. I was the last survivor of the government of Earth, a minor functionary stranded on the Moon during a routine fact-finding mission when the sudden onset of climate catastrophe froze all life on the primary. How I survived in the anarchy that followed is a long story, and another story. You may not have heard it, but that hardly matters.

You'll have heard of me.